OPERATOR'S MANUAL



EXCAVATOR

JZ140 [T4i], JZ141 [T4F]

EN - 9831/4300
ISSUE 1 - 05/2017

THIS MANUAL SHOULD ALWAYS STAY WITH THE MACHINE

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Safety

Safety - Yours and Others

All machinery can be hazardous. When a machine is correctly operated and maintained, it is a safe machine to work with. When it is carelessly operated or poorly maintained it can become a danger to you (the operator) and others.

In this manual and on the machine you will find warning messages, read and understand them. They inform you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your employer or JCB dealer to explain them.

Safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking of what hazards there might be and how to avoid them.

Do not work with the machine until you are sure that you can control it.

Do not start any work until you are sure that you and those around you will be safe.

If you are not sure of anything, about the machine or the work, ask someone who knows. Do not assume anything.

Remember:

- Be careful
- Be alert
- Be safe.

Safety Warnings

In this manual and on the machine, there are safety notices. Each notice starts with a signal word. The signal word meanings are given below.

The signal word 'DANGER' indicates a hazardous situation which, if not avoided, will result in death or serious injury.

The signal word 'WARNING' indicates a hazardous situation which, if not avoided, could result in death or serious injury.

The signal word 'CAUTION' indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

The signal word 'Notice' indicates a hazardous situation which, if not avoided, could result in machine damage.

The safety alert system (shown) also helps to identify important safety messages in this manual and on the machine. When you see this symbol, be alert, your safety is involved, carefully read the message that follows, and inform other operators.

Figure 2. The safety alert system

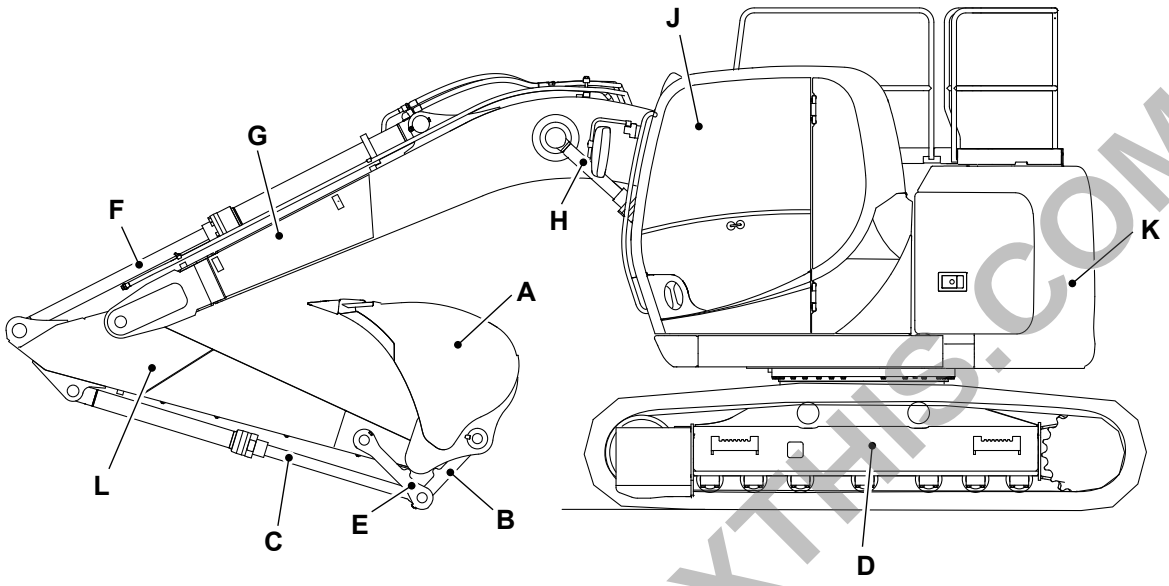


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Main Component Locations

Figure 3.



A Bucket
B Bucket link
C Bucket ram
D Undercarriage
E Dipper link
F Dipper ram
G Boom
H Boom ram
J Operators cab
K Counterweight
L Dipper

The boom dipper and bucket are collectively referred to as the excavator end, or dig end.

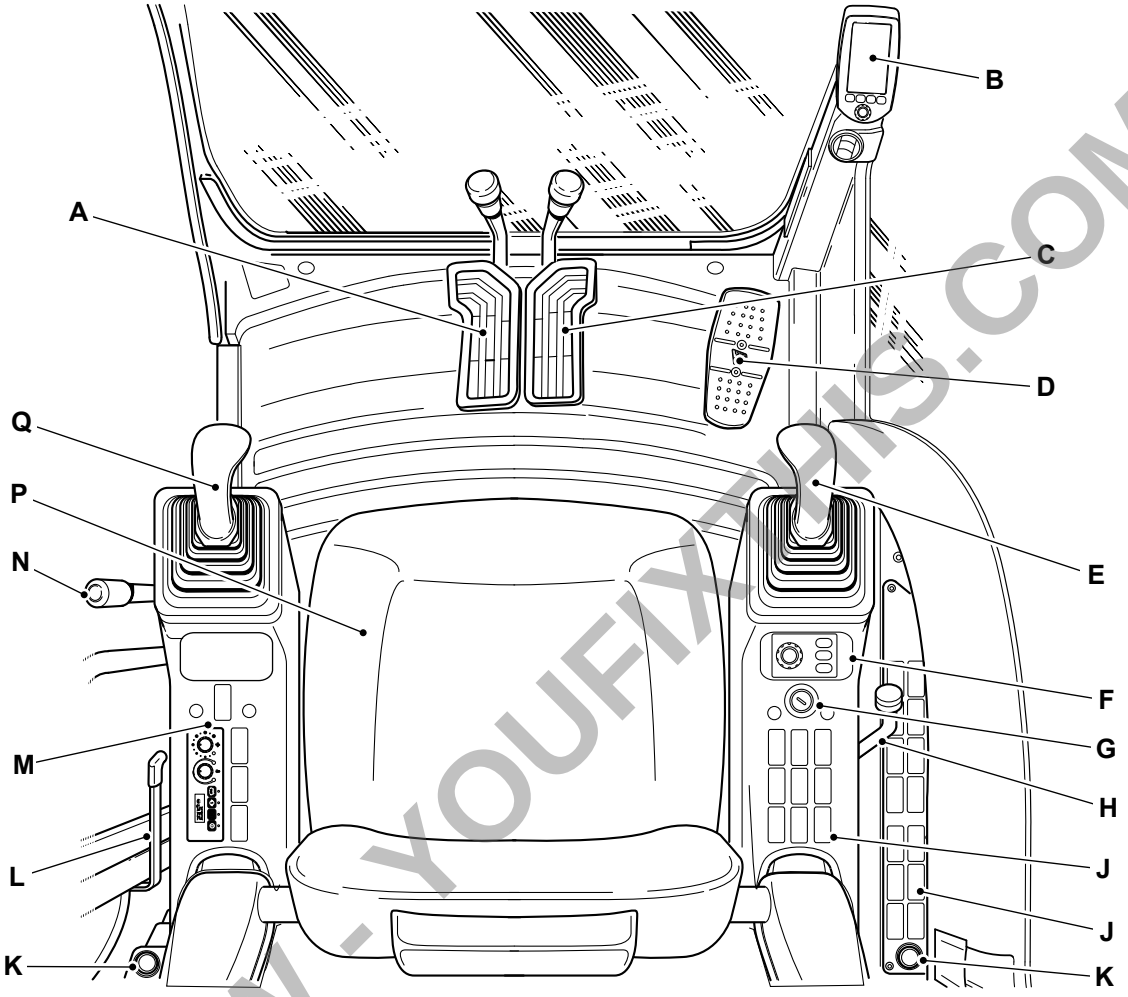
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Operator Station

Component Locations

Figure 11.



A Left hand track control, Refer to: Track Controls (Page 61).
B DECU (Display Electronic Control Unit), Refer to: Instrument Panel (Page 65).
C Right hand track control, Refer to: Track Controls (Page 61).
D Optional circuit pedal, Refer to: Auxiliary Circuit Controls (Page 104).
E Right joystick, Refer to: Excavator Arm Controls (Page 96).
F Machine power band controller, Refer to: General (Page 64).
G Ignition switch, Refer to: Ignition Switch (Page 17).
H Dozer lever,
J Right switch console, Refer to: Console Switches (Page 19).
K 12V auxiliary power socket, Refer to: Auxiliary Power Socket (Page 126).
L Door lever, Refer to: Operator Door (Page 33).
M Left switch console, Refer to: Console Switches (Page 19).
N Controls isolation lever,Refer to: Control Lock (Page 59).
P Seat, Refer to: Operator Seat (Page 42).
Q Left joystick, Refer to: Excavator Arm Controls (Page 96).

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Operation
Introduction

General

The aim of this part of the manual is to guide the operator step-by-step through the task of learning how to operate the machine efficiently and safely. Read the Operation section through from beginning to end.

The operator must always be aware of events happening in or around the machine. Safety must always be the most important factor when you operate the machine.

When you understand the operating controls, gauges and switches, practice using them. Drive the machine in an open space, clear of people. Get to know the 'feel' of the machine and its driving controls.

Do not rush the job of learning, make sure you fully understand everything in the Operation section. Take your time and work efficiently and safely.

Remember:

- Be careful.
- Be alert.
- Be safe.

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Entering and Leaving the Operator Station

General

General

⚠ **WARNING** For safety reasons, machines installed with single access canopies from new must not have the barrier removed. The machine must always be entered/exited with the left hand isolator raised via the left hand side.

WARNING Do not enter or exit the cab unless the controls isolation lever is in the fully raised position.

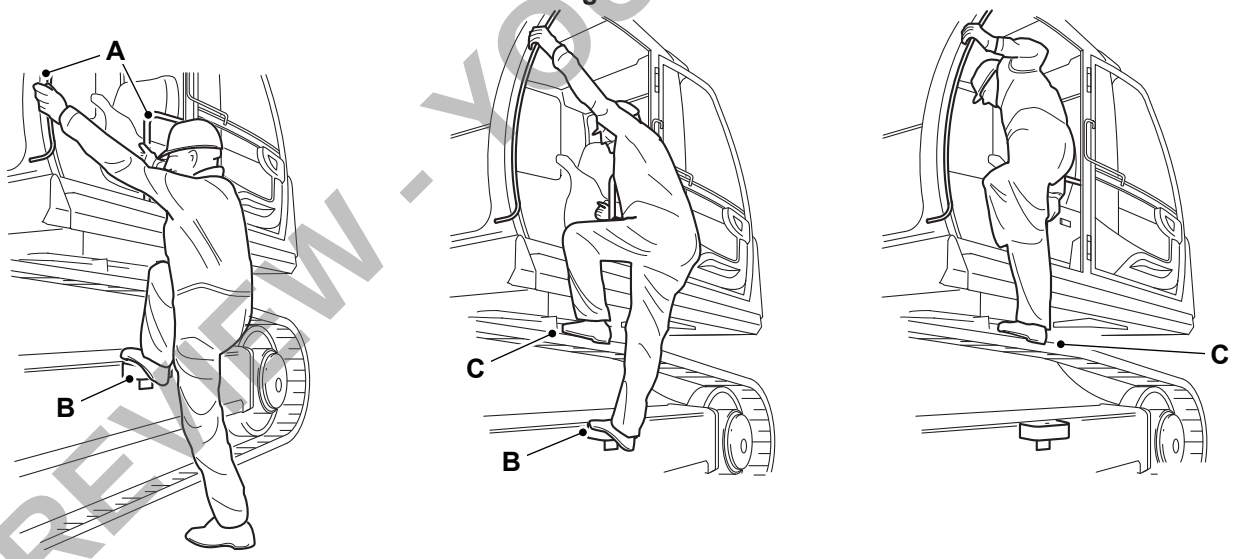
CAUTION Entering or leaving the operator station must only be made where steps and handrails are provided. Always face the machine when entering and leaving. Make sure the step(s), handrails and your boot soles are clean and dry. Do not jump from the machine. Do not use the machine controls as handholds, use the handrails.

Standard Cab Machines

Entering the Cab

1. Open the cab door and if necessary, latch it in the open position.
   Refer to: Operator Door (Page 33).
2. Make sure that the controls lock lever is in the raised position.
   Refer to: Control Lock (Page 59).
3. Hold the two handrails (one each side of the cab entrance), then use the step between the top and bottom tracks to climb onto the top of the track. Refer to Figure 15.

Figure 15.



A Handrails
B Step
C Track

4. Keep hold of the left handrail, then climb into the cab and swing yourself into the operators seat.
5. Close the cab door.

Leaving the Cab

1. Park the machine on solid, level ground with the upper structure parallel to the undercarriage.
2. Lower the attachment.
   Refer to: Excavator Arm Controls (Page 96).

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Storage

General

If the product will not be used for an extended period, you must store the product correctly. If you prepare the product carefully and apply on-going care you can prevent deterioration and damage to the product while it is in storage.

Storage Area

The product can be stored in a temperature range of: -40°C (-39.9°F) to 54°C (129.1°F)

When possible, you must keep the product in a dry building or shelter.

If only an outdoor storage area is available, look for a storage area with good drainage.

Prepare the Product for Storage

1. Clean the product to remove all unwanted material and corrosive products.
2. Dry the product to remove solvents and moisture.
3. Touch-up any damaged paint.
4. Apply grease to the moving parts (if applicable).
5. Examine the product for worn or damaged parts. Replace if necessary.
6. Fill the fuel tank to prevent a build up of condensation in the tank (if applicable).
7. Examine the coolant condition. Replace if necessary.
8. Examine all fluid levels. Top up if necessary.

Put into Storage

1. Park the machine on solid, level ground.
    1.1. Park the machine in an area where it is easy to access. (In case the machine does not start at the end of the storage period).
    1.2. Put suitable timbers under the machine to eliminate direct contact with the ground.
2. Retract all of the rams and lower the attachment to the ground.
3. Vent the hydraulic system.
4. Remove the ignition key.
5. Apply a thin layer of grease or petroleum jelly to all of the exposed ram piston rods.
6. Remove the battery.
    6.1. Keep the battery in warm, dry conditions.
    6.2. Charge the battery periodically.
7. If you keep the machine outdoors, cover the machine with tarpaulins or plastic sheets.

During Storage

Operate the machine functions each week to prevent a build up of rust in the engine and hydraulic circuits, and to minimise the deterioration of the hydraulic seals.

1. Remove the grease or petroleum jelly from the ram piston rods.
2. Examine all fluid levels. If necessary, add more fuel.

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Maintenance Schedules

General

⚠ **WARNING** Maintenance must be done only by suitably qualified and competent persons.

Before doing any maintenance make sure the machine is safe, it must be correctly parked on solid, level ground.

To prevent anyone starting the engine, remove the ignition key. Disconnect the battery when you are not using electrical power. If you do not take these precautions you could be killed or injured.

A badly maintained machine is a danger to the operator and the people working around the operator. Make sure that the regular maintenance and lubrication tasks listed in the service schedules are done to keep the machine in a safe and efficient working condition.

To ensure the correct functioning of the engine and emissions control system all operation and maintenance must be conducted in accordance with the instructions in this manual. Incorrect operation, maintenance or repair of the engine and emissions control system may lead to reduced product life, loss of performance or malfunctions. It is the machine owner's responsibility to ensure maintenance is conducted properly in accordance with the requirements in this manual.

Apart from the daily tasks, the schedules are based on the machine running hours. Keep a regular check on the hourmeter readings to correctly gauge the service intervals. When there is no hourmeter installed, use the calendar equivalents to determine the service intervals.

Do not use a machine which is due for a service. Make sure any defects found during the regular maintenance checks are corrected immediately.

More frequent checks of engine components than the engine manufacturer recommends do not invalidate emissions warranty.

How to Use the Maintenance Schedules

The schedules show the service tasks which must be done and their intervals.

The services must be done at either the hourly interval or the calendar equivalent, whichever occurs first.

The intervals given in the schedules must not be exceeded. If the machine is operated under severe conditions (high temperature, dust, water, etc.) shorten the intervals.

Table 12.

○	Service task can be completed by a competent operator. Details of how to complete the service task are given in the Operator's Manual.
□	We recommend that a Service Engineer completes the service task. Details of how to complete the service task are given in the Service Manual.

Maintenance Intervals

General

Table 13.

Interval (h)	Calendar Equivalent
10	Daily
50	Weekly
250	Monthly
500	Three months
1000	Six months
2000	Yearly

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Steel

Check (Operation)

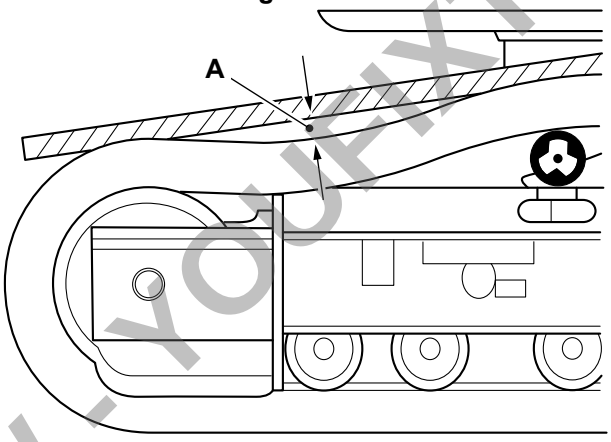
⚠ **WARNING** Recoil unit servicing must only be carried out by JCB dealers. You could be killed or injured if you tamper with it.

Notice: Always make sure that the track tension measurement is not less than specified or severe strain to the track will result.

Check/Adjust the Track Tension

1. Stop the machine on solid, level ground.
2. Move the machine backwards and forwards several times, then move the machine forwards and stop it on level ground.
3. Stop the engine.
4. Check the track tension.

Figure 235.



A Track tension - measurement

4.1. Place a long, stiff and straight piece of steel or wood on top of the tracks touching above the front idler and the top roller.

5. Make sure the track tension is within the specified limits.
Refer to: Tracks (Page 273).
6. If necessary, adjust the track tension.
   6.1. To adjust the track tension, inject or release grease from the check valve.
   6.2. Inject grease to increase the tension.
   6.3. Release grease to decrease the tension.
   6.4. When you open the check valve, always stand to one side and loosen it a slowly until the grease starts to release.
   6.5. Do not loosen the check valve too much, grease can spurt out or the cover of the check valve can come off and cause serious injury.
7. Never attempt to disassemble the check valve or try to remove the grease point from the check valve.
8. If there is a clearance between the idler wheel shaft and the track frame, use pressure to apply the grease.
9. If there is no clearance after the application of grease, then contact your JCB dealer for any service requirements.

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Boom length		5,000mm			
Dipper length		**2,100mm**	**2,500mm**	**2,700mm**	**3,000mm**
C	Maximum digging depth	4,479mm	4,883mm	5,183mm	5,382mm
D	Maximum digging height	9,355mm	9,654mm	9,733mm	10,030mm
E	Maximum dumping height	6,887mm	7,186mm	7,289mm	7,562mm
F	Maximum vertical wall cut depth	3,559mm	3,909mm	4,016mm	4,336mm
G	Minimum swing radius	2,576mm	2,691mm	3,090mm	3,109mm

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Torque Values

General

JZ140 and Variants

Before and after daily work, check for loose or missing nuts and bolts. Tighten if loose and replace if missing.

Tighten the nuts and bolts after the first 50h of the running-in stage and then every 250h.

Tighten the nuts and bolts, Refer to Table 57.

For the tightening torques of the bolts and nuts not listed, Refer to Table 58.

Table 57.

	Tightening Point	Bolt Diameter	Wrench (mm)	Tightening Torque (N.m)	Checking Torque (N.m)
1(1)	Travel motor	M16	24	290	265
2(1)	Drive sprocket	M16	24	290	265
3(1)	Idler wheel	M16	24	290	265
4(1)	Upper (carrier) roller	M16/M20	24/30	290/550	265/515
5(1)	Lower (track) roller	M16	24	290	265
6(1)	Track guard	M16	24	290	265
7	Shoe bolt	M16	24	363-421	327-379
8	Counterweight	M30	46	1737	1565
9(1)	Turntable bearing (under-carriage)	M16/M20	24/30	296/525	275/470
10(1)	Turntable bearing (slew frame)	M16/M20	24/30	296/525	275/470
11(1)	Slew equipment	M16/M20	24/30	290/550	265/515
12(1)	Engine (engine mount)	M16	24	290	265
13(1)	Engine bracket	M10/M12	17/19	68/118	62/107
14	Radiator	M12	19	104	94
15(1)	Hydraulic pump	M10	17	60	54
16(1)	Hydraulic oil tank	M16	24	250	225
17(1)	Fuel tank	M16	24	250	225
18(1)	Control valve	M16	24	290	265
19	Battery	M6	10	7	6
20(1)	Rotary coupling	M12	19	116	105
21	Cab	M16	24	132	125

(1) Use JCB Threadlocker and sealer (High Strength) and tighten to the torque listed.

Table 58.

Bolt Diameter (size)			M6	M8	M10	M12	M14	M16	M18	M20
Hex. bolt	Wrench	(mm)	10	13	17	19	22	24	27	30
	Tightening torque	(N.m)	12.5	30	60	104	167	259	506	874
Hex. socket head bolt	Wrench	(mm)	5	6	8	10	12	14	16	17
	Tightening torque	(N.m)	15	36	72	125	200	311	-	607

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